

# MONTANA CLINICAL COMMUNICATION & SURVEILLANCE REPORT



Montana Department of Public Health and Human Services  
Chronic Disease Prevention and Health Promotion Program  
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ISSUE JULY - SEPTEMBER 2005

## BURDEN AND TRENDS OF HEART DISEASE AND STROKE MORTALITY AMONG AMERICAN INDIANS AND WHITES IN MONTANA, 1991-2000

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Burden and Trends of Heart Disease and Stroke Mortality Among American Indians and Whites in Montana, 1991-2000

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5th Annual Cardiovascular Health Summit Conference - Grouse Mountain Lodge, Whitefish, Montana, April 7, 2006

Increased Reimbursement for Acute Stroke Treatment

## BACKGROUND

Eliminating racial and ethnic disparities in cardiovascular disease is an important public health goal in the United States. Disparities in cardiovascular health have been well-defined from national data showing markedly higher mortality from both heart disease and stroke in blacks compared to whites. In the past, some studies of American Indians and Alaska Natives suggested that heart disease and stroke mortality rates were considerably lower than the rates found in blacks or whites. However, cardiovascular disease is now the leading cause of death in American Indian and Alaska Native communities.<sup>1</sup>

In Montana, the prevalence of cardiovascular risk factors in American Indian adults was significantly higher than in whites in 1999, and the prevalence of two or more risk factors for cardiovascular disease in Indian adults increased from 34% to 44% between 1999 and 2003.<sup>2,3</sup> This report describes the burden and trends of heart disease and stroke mortality in American Indians and whites in Montana from 1991 to 2000 and shows what progress has been made towards eliminating the disparities during the decade.

## METHODS

Data from Montana death certificates were analyzed to determine the heart disease and stroke mortality rates among Montana residents from 1991 to 2000. During this time period there were 75,993 deaths among Montana residents, essentially all of which occurred among American Indians (4.5%) or whites (95.1%). Deaths among Montanans who were not classified as American Indian or white were excluded from these analyses. Heart disease and stroke deaths were classified by the underlying cause of death according to the International Classification of Diseases, Ninth Revision (ICD-9), between 1991 and 1998 and Tenth Revision (ICD-10) beginning in 1999.

Age-adjusted heart disease and stroke mortality rates (per 100,000) were calculated for American Indians and whites overall, and by gender from 1991 to 1995 and from 1996 to 2000. The age-adjusted mortality rates were calculated using the direct method and the 2000 standard population, and Z tests were used to assess differences in mortality rates.<sup>4</sup>

## RESULTS

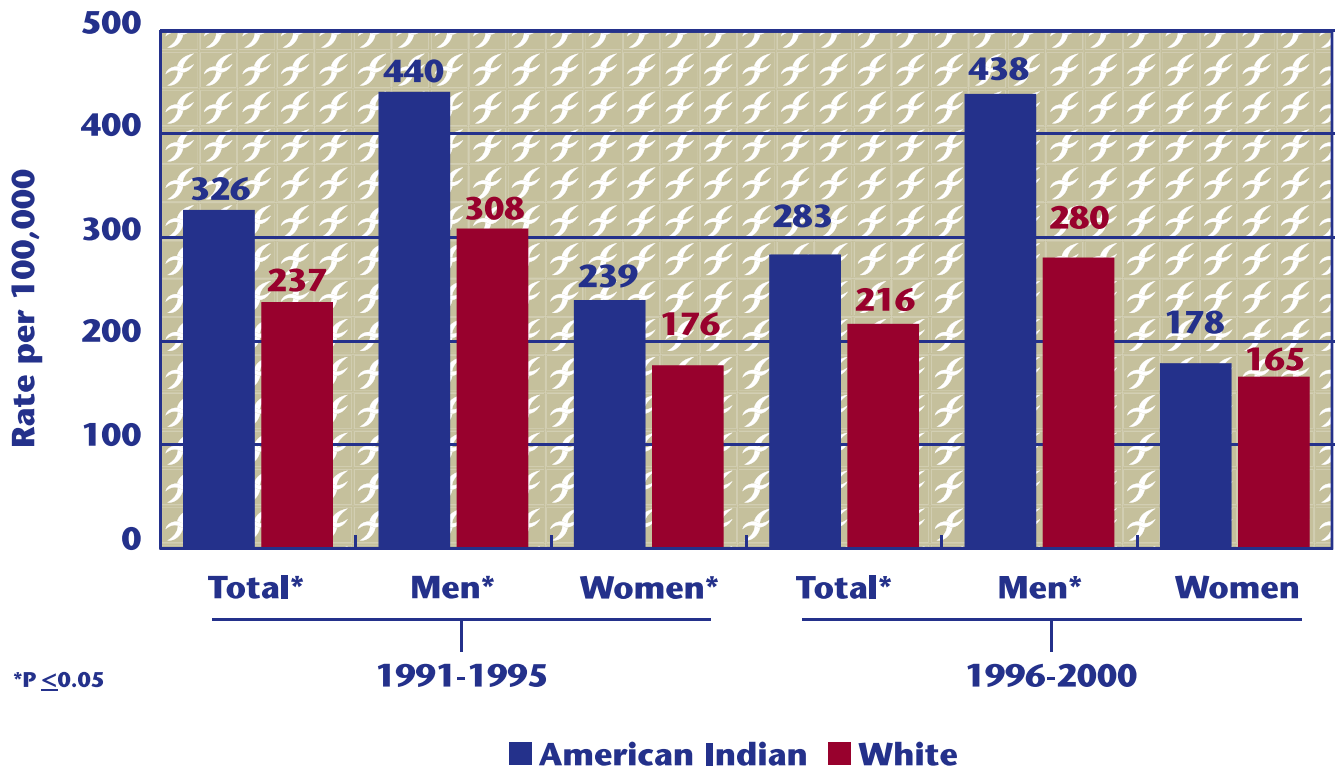
Between 1991 and 2000 there were 20,046 deaths due to heart disease, 635 (3%) among American Indians and 19,411 (97%) among whites in Montana (Table 1). During this same time period there were 5,499 deaths due to stroke, 155 (3%) among American Indians and

Cause of Death	ICD-9 Codes (1991 - 1998)	ICD-10 Codes (1999 - 2000)
HEART DISEASE	390-398, 402, 404, 410-429	I00-I09, I11, I13, I20-I51
STROKE	430-434, 436-438	I60-I69

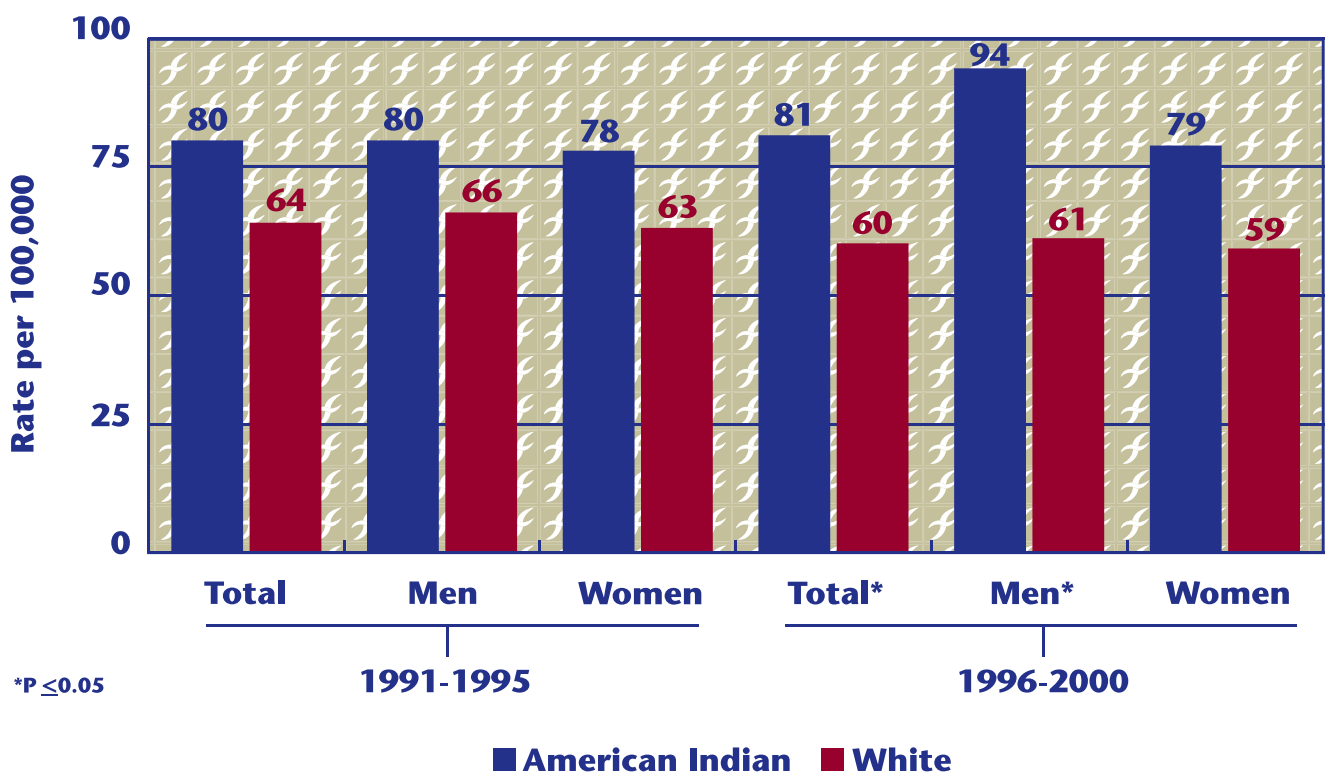
**Table 1. Number of deaths due to heart disease and stroke in American Indians and whites and percent premature (aged <65 years), Montana, 1991 to 2000.**

	Number of deaths		Percent less than
	All Ages	Ages <65 years	65 years of age
<b>HEART DISEASE</b>			
<b>AMERICAN INDIAN</b>			
Total	635	251	40
Men	404	183	45
Women	231	68	29
<b>WHITE</b>			
Total	19,411	2,857	15
Men	10,430	2,144	21
Women	9,001	713	8
<b>STROKE</b>			
<b>AMERICAN INDIAN</b>			
Total	155	49	32
Men	69	25	36
Women	86	24	28
<b>WHITE</b>			
Total	5,344	443	8
Men	2,115	234	11
Women	3,229	209	7

**Figure 1. Age-adjusted heart disease mortality rates in American Indians and whites, Montana, 1991 to 1995 and 1996 to 2000.**



**Figure 2. Age-adjusted stroke mortality rates in American Indians and whites, Montana, 1991 to 1995 and 1996 to 2000.**



5,344 (97%) among whites in Montana. Forty percent of Indians who died of heart disease between 1991 and 2000 were less than 65 years of age compared to only 15% of whites (Table 1). Similarly, 32% of Montana Indians who died of a stroke during this time period were less than 65 years of age compared to 8% of whites.

From 1991 to 1995, the age-adjusted heart disease mortality rates (per 100,000) in Montana American Indians overall and in men and women were significantly higher than the rates in whites (Figure 1). There were no significant differences in the age-adjusted stroke mortality rates in American Indians compared to whites overall or in men or women from 1991 to 1995 (Figure 2). From 1996 to 2000, the age-adjusted heart disease and stroke mortality rates were significantly higher in American Indians overall and in men compared to whites.

The age-adjusted heart disease mortality rates declined significantly among whites overall (-9%) and in men (-9%) and women (-6%) over the decade (Figure 1). Between 1991 to 1995 and 1996 to 2000, among American Indians, the age-adjusted heart disease mortality rates declined significantly only among women (-25%). Despite an overall, although not significant, decline in heart disease mortality in Indians (326, +/-36 to 283, +/-31), the rate for Indians at the end of the decade was still greater than the rate at the beginning of the decade for whites (237, +/-5). The age-adjusted stroke mortality rates declined significantly only among whites overall (-6%) over the decade (Figure 2).

## CONCLUSIONS

In Montana, progress toward eliminating disparities and the burden of heart disease and stroke has been mixed over the past decade. Heart disease mortality declined significantly in white men and women in Montana as well as in Montana Indian women. However, the disparity in heart disease mortality between Indians and whites remained. Stroke mortality also declined in Montana, but only among whites. Among Indian men, cardiovascular mortality rates were alarmingly high, and over one-third of Indian men who died from these conditions were less than 65 years of age and thus the deaths are considered “premature.” Premature cardiovascular mortality was also striking among Montana Indian women. However, heart disease mortality rates among Montana Indian women were similar to the rates found in white women in the second half of the decade.

Although there were no significant differences in the age-adjusted stroke mortality rates from 1991 to 1995 in Montana Indians compared to whites overall or in men or women, a disparity emerged in the later period. From 1996 to 2000, the age-adjusted stroke mortality rates were significantly higher in Montana Indians overall and in men compared to whites. Stroke mortality rates in Indian women remained stable during this decade, however. But the stroke mortality rates in Montana Indians during this time period were approximately two-fold higher than the national rate for all races combined. And in Montana, the stroke mortality rate in Indians was actually comparable to the stroke mortality rate in blacks in the U.S. (82 per 100,000 in 2000).<sup>1</sup>

Thus, in Montana, ongoing efforts for the management of cardiovascular risk factors and clinical disease remain important. The prevention of cardiovascular risk factors such as obesity, high cholesterol, diabetes, hypertension, and smoking remains the ultimate challenge faced by all Montanans.

## REFERENCES

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## 5TH ANNUAL CARDIOVASCULAR HEALTH SUMMIT CONFERENCE – GROUSE MOUNTAIN LODGE, WHITEFISH, MONTANA, APRIL 7, 2006 SAVE THE DATE!

The Montana Cardiovascular Health Program's Annual Summit Conference will be held on Friday, April 7, 2006 in Whitefish, Montana at Grouse Mountain Lodge. This conference will identify methods to promote cardiovascular health and treat cardiovascular disease. Educational credits will be offered. For more information contact Crystelle Fogle at 406/947-2344 or e-mail [cfogle@mt.gov](mailto:cfogle@mt.gov).

## INCREASED REIMBURSEMENT FOR ACUTE STROKE TREATMENT

The recently published CMS 2006 Final Rule includes a new Diagnosis Related Group (DRG) code for acute stroke! CMS created **DRG 559** for Acute Ischemic Stroke with use of a thrombolytic agent, with a reimbursement of \$11,578. Prior to this action, DRG codes for stroke limited reimbursement to \$4,000-\$6,000 regardless of the therapy provided.

## WHAT ARE THE MONTANA DIABETES PREVENTION AND CARDIOVASCULAR HEALTH PROGRAMS AND HOW CAN WE BE CONTACTED?

The Montana Diabetes Control and Cardiovascular Health Programs are funded through cooperative agreements with the Centers for Disease Control and Prevention, Division of Diabetes Translation (U32/CCU822743-03), the Division of Adult and Community Health (U50/CCU821287-04) and through the Montana Department of Public Health and Human Services.

The mission of the Diabetes Control and Cardiovascular Health Programs is to reduce the burden of diabetes and cardiovascular disease among Montanans. Our web pages can be accessed at <http://ahec.msu.montana.edu/diabetes/default.htm> and <http://montanacardiovascular.state.mt.us>.

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